(51) International Patent Classification:
G06N 5/02 (2006.01)

(21) International Application Number:
PCT/US20 13/049304

(22) International Filing Date:
3 July 2013 (03.07.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/668,282 5 July 2012 (05.07.2012) US
61/716,960 22 October 2012 (22.10.2012) us
61/750,184 8 January 2013 (08.01.2013) US
61/800,197 15 March 2013 (15.03.2013) US

(71) Applicant: FLEXTRONICS AP, LLC [US/US]; 6201 America Center Drive, San Jose, CA 95134 (US).

(72) Inventors: LINTON, Tom; 49 Vanderbilt Pointe Lane, Newnan, GA 30265 (US). FONG, Gary; 21701 Stevens Creek Blvd, #1512, Cupertino, CA 95014 (US). WHIPPLE, Mark, B.; 1204 Snowberry Drive, Golden, CO 80401 (US). BERGER, Marni; 1126 North Road, Belmont, CA 94002 (US). JONES, Glenn; 2168 Tanner Court, Pleasanton, CA 94566 (US).


(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

**Continued on nextpage**

(54) Title: METHOD AND SYSTEM FOR CONTROLLING SUPPLY CHAINS

(57) Abstract: The present disclosure discloses a supply chain management system that can coordinate and estimate manufactured item delivery times at a facility, manufactured item costs or prices, and dynamically control supply chain performance, in a supply chain comprising a tier 1 control tower, tier 2 product assembler, tier 3 part and/or component manufacturer, and tier 4 material supplier being associated with a different and independent enterprise and/or organization.

[FIG. 1]
Published:

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

— with international search report (Art. 21(3))

(88) Date of publication of the international search report:
15 May 2014
### Classification of Subject Matter

**IPC(8)**: G06N 5/02 (2014.01)  
**USPC**: 700/105

According to International Patent Classification (IPC) or to both national classification and IPC.

### Fields Searched

Minimum documentation searched (classification system followed by classification symbols)

**IPC(8)**: G06N 5/02; G06Q 10/00, 30/00 (2014.01)  
**USPC**: 700/105; 705/28; 709/217

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)


### Documents Considered to be Relevant

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 2007/0203770 A1 (GROSVENOR, F et al.) August 30, 2007; paragraphs [0029], [0030], [0064]-[0066], [0092], [0134], [0187]; figures 1A.1B.</td>
<td>1-4, 12-15, 23-26</td>
</tr>
<tr>
<td>Y</td>
<td>US 6151582 A1 (HUANG, Y et al.) November 21, 2000; column 7, lines 32-34; column 10, lines 56-59.</td>
<td>5, 16, 27</td>
</tr>
<tr>
<td>Y</td>
<td>US 2010/0125486 A1 (SINCLAIR, E et al.) May 20, 2010; abstract.</td>
<td>6-10, 17-21, 28-32</td>
</tr>
<tr>
<td>Y</td>
<td>WO 2011/025987 A1 (COVA, N et al.) March 3, 2011; paragraphs [0031], [0033], [0034], [0081], [0086], [0099]; figures 3-5.</td>
<td>7-10, 18-21, 29-32</td>
</tr>
<tr>
<td>A</td>
<td>WO 2006/083752 A2 (CHAPIN, C) August 10, 2006; entire document.</td>
<td>11, 22, 33</td>
</tr>
<tr>
<td>A</td>
<td>WO 2001/75700 A2 (MCGLADE, M et al.) October 11, 2001; entire document.</td>
<td>1-33</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:
  * "A" document defining the general state of the art which is not considered to be of particular relevance.
  * "E" earlier application or patent but published on or after the international filing date.
  * "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified).
  * "O" document referring to an oral disclosure, use, exhibition or other means.
  * "P" document published prior to the international filing date but later than the priority date claimed.

Date of the actual completion of the international search: 27 February 2014 (27.02.2014)

Date of mailing of the international search report: 21 March 2014

Name and mailing address of the ISA/US:  
**Mail Stop PCT, Attn: ISA/US, Commissioner for Patents**  
P.O. Box 1450, Alexandria, Virginia 22313-1450  
**Facsimile No. 571-273-3201**

Authorized officer: Shane Thomas

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774
### Box No. II  Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [ ] Claims Nos.:
   - because they relate to subject matter not required to be searched by this Authority, namely:

2. [ ] Claims Nos.:
   - because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. [ ] Claims Nos.:
   - because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box No. III  Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

- Group I: Claims 1-33; Group II: Claims 34-64; Group III: Claims 65-94; Group IV: Claims 95-118; Group V: Claims 119-136
- """"Please see Supplemental Page.***.

1. [ ] As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. [ ] No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-33

**Remark on Protest**

[ ] The additional search fees were accompanied by the applicant’s protest and, where applicable, the payment of a protest fee.

[ ] The additional search fees were accompanied by the applicant’s protest but the applicable protest fee was not paid within the time limit specified in the invitation.

[ ] No protest accompanied the payment of additional search fees.

---

Form PCT/ISA/210 (continuation of first sheet (2)) (July 2009)
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-33 are directed toward a supply chain system and method to collect performance information.

Group II: Claims 34-64 are directed toward a system and method for identifying an event impacting a supply chain.

Group III: Claims 65-94 are directed toward a system and method to determine a risk of a supply chain.

Group IV: Claims 95-118 are directed toward a system and method for monitoring multiple supply chains for different products.

Group V: Claims 119-136 are directed toward a system and method to monitor current pricing of materials, parts, and components of a selected product.

The inventions listed as Groups I-V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I include each of a tier 1 control tower, tier 2 product assembler, tier 3 part and/or component being associated with a different and independent enterprise and/or organization, which are not present in Groups II-V.

The special technical features of Group II include identifying at least one of a natural disaster, weather, political and business event impacting a supply chain and/or analyze a financial and/or logistical impact of the event on the supply chain, which are not present in Groups I and III-V.

The special technical features of Group III include determine a risk that the supply chain will fail to satisfy a requirement and/or objective and/or generate and/or implement a recommendation to mitigate the failure, which are not present in Groups I-II and III-IV.

The special technical features of Group IV include receiving a query from a requestor to perform an operation with respect to a set of data in the database, modify the query to conform to a security definition, and use the modified query to perform the operation, which are not present in Groups I-III and V.

The special technical features of Group V include monitoring current pricing and, when pricing materially changes, at least one of notify an administrator, provide a recommendation to mitigate the adverse impact of the pricing change, and determine a financial impact from the material change in pricing, which are not present in Groups I-IV.

The common technical feature shared by Groups I-V is a system for monitoring supply chains for different products and collecting performance information. However, this common feature is previously disclosed by US 7,609,456 B2 (Katircioglu). Katircioglu discloses a system for monitoring supply chains for different products and collecting performance information (managing component supply for complex products by monitoring the delivery performance of component suppliers and optimizing the times at which orders are placed; Abstract).

Since the common technical feature is previously disclosed by the Katircioglu reference, this common feature is not special and so Groups I-V lack unity.